Death as Cessation, Not Non-Being: A Deflationary Account of "Nothing"

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October 8, 2025

We never encounter non-existence. Every observation, memory, or report arrives as some content rather than none. This paper makes a precise claim: death is cessation of further experiences; it is not an experience of non-being. The point is not wordplay but structure. Phenomenologically, an "experience of no experience" is incoherent. Semantically, talk of nonexistence reduces to domain-relative quantification ("there is no x such that …") rather than positing an entity called "nothing." Physically, vacua, null results, and horizons are typed somethings (states, boundary data, access limits), not absolute nothing. We formalize a minimal predicate for experience along a worldline or implementable computational pattern and show why neither birth nor death can constitute an experience of non-being. The framework clarifies anesthesia, coma, and near-death narratives, and it reframes grief and ethics around relational cessation instead of ontic annihilation. Practically, replacing "nothing" with typed absences and access limits sharpens prediction and decision: what can be restored, where care is meaningful, which claims overreach. The result is an austere, cross-disciplinary account—phenomenology, semantics, and physics—unifying the intuition that "nothing" never appears with a formalism that is testable-in-spirit and directly useful for clinical, legal, and philosophical reasoning.

Keywords: death, nonexistence, phenomenology of presence, observer, semantics of existence, quantifiers, typed emptiness, vacuum vs nothing, horizons, cessation, anesthesia, ethics of care.

A collaboration with GPT-5. 38 pages. CC4.0.

Outline

1. Thesis and Scope
   1.1 Thesis: Death = cessation of further experiences; there is no “experience of non-being.”
   1.2 Not claimed: denial of death, loss, or absence; no solipsism; no commitment to a specific metaphysics beyond the minimal formalism.

2. Formal Core (copy-safe)
   2.1 Predicate and timeline

- Let E(t) := “there exists an experience token at proper time t along a worldline or pattern implementation.”
- Life segment: exists t0 < t1 s.t. for all t in [t0,t1], E(t) holds intermittently or continuously.
- Death at td: for all t > td, not E(t).

2.2 Principle of Experiential Non-Access (PENA)

- Observation always has positive content.
- “Experience of non-experience” is self-contradictory: it posits an experience token whose content denies its own tokening.

2.3 Lemma (No witness of non-being)

- There is no t such that E(t) and “experience of non-being” co-occur.
- Corollary: neither birth nor death can be an experience of “prior/post non-being.”

3. Phenomenology: Why “Nothing” Never Appears
   3.1 Every first-person datum is contentful; blankness is still content (faint, minimal, or non-specific).
   3.2 Memory asymmetry: gaps (sleep, anesthesia) yield no data about non-being; they are merely intervals with not E(t).

4. Semantics: Deflating “Nothing”
   4.1 Existence in a domain D: exists x in D: P(x).
   4.2 “Nonexistence” := not exists x in D: P(x). No entity “nothing” is required.
   4.3 Model relativity: switch domain/theory, switch verdict; avoid reifying “nothing.”

5. Typed Emptiness Across Disciplines
   5.1 Mathematics/CS: empty set {}, null, None, 0 are typed states/objects, not metaphysical voids.

5.2 Engineering: “no signal” = signal below threshold; still a typed condition.
5.3 Epistemology: “no evidence” != “evidence of absence” unless test is power-sufficient and scope-complete.

6. Physics Fit (Concise)
   6.1 GR: Proper time ends at td; beyond td there is no parameter to host E(t). No event encodes “I now experience non-being.”
   6.2 QFT: Vacuum is a structured state (symmetries, fluctuations); “nothing” is not a physical state.
   6.3 Horizons (Rindler/black-hole/cosmic): limit access, not being; disappearance is an access boundary, not annihilation.

7. Boundaries and Casework
   7.1 Birth: onset of E(t); no “experience of prior non-being.”
   7.2 Anesthesia/coma: intervals where not E(t) holds, bracketed by E before/after; no witness of non-being arises from non-reporting states.
   7.3 NDE reports: experiences near boundary conditions; contentful E(t), not counterexamples to PENA.

8. Discriminators (Testable-in-Spirit)
   8.1 Anywhere a theory posits “nothing,” replace with typed emptiness or access failure; prefer formulations that yield sharper predictions.
   8.2 Clinical: track proxies for E(t) (e.g., integration indices, behavioral responsiveness); treat recovery as restoration of E(t), not return “from nothing.”
   8.3 Observational cosmology: treat survey nulls as limit statements (sensitivity/coverage), not claims of “non-being.”

9. Ethical and Practical Consequences
   9.1 Care where E(t) is possible or plausibly restorable (coma, hypothermia, neuro-rehab); clarify thresholds for “futility” as constraints on future E(t).
   9.2 Grief and meaning: loss = cessation of shared future E(t), grounding rituals and records in preserving relations, not denying facts.
   9.3 Governance/argument hygiene: forbid appeals to “nothing”; require explicit domains, tests, and typed absences.

10. Objections and Replies (Concise)
    10.1 O: “I can imagine nothing.”
    R: You imagine a blank scene; that is a contentful E(t).
    10.2 O: “Negation needs nothing.”
    R: Negation is a truth-function over propositions; it posits no entity “nothing.”

10.3 O: “Physics speaks of creation from nothing.”
R: Read as boundary conditions + symmetry breaking in a theory; vacua and constraints are somethings.
10.4 O: “Death feels like falling into nothing.”
R: The last felt E(t) can represent fading; an “experience of non-being” cannot be tokened by PENA.

11. Compact Formal Summary (drop-in)

- Thesis: Death := cessation of further E(t); not an experience of non-being.
- PENA: For any observer O, any observation o has content c != null.
- No-witness lemma: There is no t with E(t) & “experience of non-being.”
- Semantic deflation: “X does not exist (in D)” := not exists x in D: P_X(x).
- Horizon principle: Beyond access != non-existence; mark as underdetermined unless domain/test suffices.

12. Conclusion
A coherent, minimal ontology needs no metaphysical “nothing.” Phenomenology forbids an experience of non-experience; semantics cashes “nonexistence” as domain-relative failure of instantiation; physics replaces “nothing” with structured states and access limits. Death, then, is cessation of further experiences—real, grave, and ethically potent—without ever constituting an experience of non-being. Rewriting our theories and practices in typed absences and access horizons yields cleaner predictions and kinder, clearer decisions.

References

1. Thesis and Scope

1.1 Thesis: death = cessation of further experiences; there is no "experience of non-being"

Plain statement.
Death is the condition under which no future experience tokens occur for the subject. By construction, there cannot be an experience whose content is "no experience," so there is no such thing as an "experience of non-being."

Minimal formalism.

- Let E(t) := "there exists an experience token at proper time t along a subject's worldline or pattern-implementation."
- Life segment: exists t0 < t1 with E(t) holding (intermittently or continuously) for t in [t0, t1].
- Death at td: for all t > td, not E(t).
- PENA (Principle of Experiential Non-Access): observations must have positive content; the proposition "experienced non-experience" is self-contradictory.

Interpretive latitude.

- The formalism is agnostic to what grounds E(t): biological, functional, computational, or spiritual accounts may specify the substrate/criterion for "experience token" without altering the logic that "non-experience" cannot be experienced.
- The thesis is compatible with multiple time ontologies (block, growing-block, presentist with care): it requires only that "future E" and "no future E" are well-typed claims within the chosen framework.

Boundary cases (clarified, not excluded).

- Sleep/anesthesia/coma: intervals with not E(t) bracketed by E before and after; no datum of "non-being" is generated by these gaps.
- Near-death experiences: E(t) near boundary conditions; contentful experiences do not violate PENA.
- Abrupt annihilation: if no further E(t) occurs, death obtains; if E(t) resumes on any substrate continuous enough under the adopted identity criterion, death did not obtain.

Falsifiable-in-spirit handles.

- Any coherent demonstration of an experience token whose veridical content entails "no experience occurs" would refute PENA.
- Any theory that requires reifying "nothing" as an entity to explain observations, and that yields strictly better predictive/decision performance than typed-absence/access-limit models, would challenge the thesis' austerity.

1.2 Not claimed: what this account does *not* assert

No denial of empirical facts.

- Not denying death, loss, or absence. The thesis names *what death is*: cessation of further E(t) for a subject. It does not minimize the finality or gravity of that cessation.

No solipsism.

- The argument is indexical, not ontologically privileging. Every observer-moment satisfies PENA; others' first-person streams are as structurally valid as yours. Nothing here implies that only one subject exists.

No metaphysical overreach.

- No commitment to a particular ontology of mind (physicalism, dualism, panpsychism), identity (animalism, psychological continuity, patternism), or time (eternalism, growing-block, presentism). The claim is a *constraint* any such ontology must respect: "experience of non-experience" cannot be tokened.

No theological verdict.

- The account is compatible with religious, agnostic, and secular views. Whether experiences continue post mortem is an empirical/metaphysical question about E(t) beyond td; the thesis only excludes the *form* "experience of non-being."

No semantic inflation.

- We do not posit an entity "nothing." Negations are handled as domain/quantifier facts: "not exists x in D: P(x)." Vacua, nulls, and zeros are typed states within theories, not metaphysical voids.

No ethical prescription beyond clarity.

- The paper does not prescribe end-of-life policy. It *does* recommend articulating claims in terms of future E(t) possibilities and thresholds (restore/maintain/foreclose), which improves transparency for clinical, legal, and pastoral decisions.

Scope conditions (where this applies).

- Applies wherever talk of death/nonexistence risks smuggling in "nothing" as an ontic posit.
- Assumes a workable criterion for when E(t) obtains (discipline-specific and revisable).
- Neutral about substrates: biological neurons, artificial systems, or other proposed carriers of experience may be evaluated under the same E(t) schema.

Comparative clarifications.

- Against "death as experience of nothing": ruled out by PENA.
- Compatible with "death as loss of access/relations": aligns with horizons/access-limit language.
- Orthogonal to "personal identity" debates: whichever criterion you adopt, "experience of non-experience" remains ill-typed.

One-sentence scope summary.
This thesis is a content-constraint on experience talk and a semantic hygiene rule: define death as no-further-E(t), handle absences by typed models and access limits, and avoid reifying "nothing"—all without taking sides on deeper metaphysics.

2. Formal Core

2.1 Predicate, timeline, and typing

Domains and types.

- Let W be a worldline or, more generally, a pattern-implementation carrier.
- Let T be a time parameter suitable for W (proper time if relativistic; any well-typed parameterization otherwise).
- Let E: T -> {0,1} be the **experience indicator**.

- Optional intensity: let m: T -> [0, +inf) be a **measure of presence** (information/integration proxy).

Experience predicate.

- Define E(t) := 1 iff there exists an experience token at time t along W.
- Define E(t) := 0 otherwise.
- Link to intensity: adopt a conventional threshold theta > 0 and set E(t) := 1 iff m(t) >= theta; else 0. (This thresholding is a modeling aid, not metaphysics.)

Life segment.

- Life(W) on interval [t0, t1] means: exists t0 < t1 and forall t in [t0,t1], E(t) = 1 holds intermittently or continuously (allowing sparse or dense tokening).

Death.

- Death at t_d means: forall t > t_d, E(t) = 0.

Remarks.

- (R1) Discrete/continuous agnostic: T may be discrete (token times) or continuous (proper time); the definitions lift.
- (R2) Substrate-agnostic: W may be biological, computational, or other; only E and (optionally) m are used.
- (R3) Identity-agnostic: The schema does not fix an identity criterion; it constrains talk of experiences given any such criterion.

2.2 PENA (Principle of Experiential Non-Access)

Axiom (PENA).

- Any observation o, if tokened, has positive content: Content(o) != null.

Incompatibility claim.

- The string “experience of non-experience” attempts to token an observation whose asserted content is the absence of any observation token.
- Formally: suppose at t*, E(t*) = 1 and Content(t*) = “no experience occurs”. Then tokening implies existence of an experience at t*, while the asserted content denies it. Contradiction.

Conclusion.

- There is no well-typed observation whose veridical content is “no observation occurs.” Hence “experience of non-being” is ill-typed.

2.3 Lemma (No witness of non-being)

Lemma.

- There is no t in T such that [E(t) = 1] and [Content(t) = “non-being”] co-occur in a way that is both self-consistent and veridical.

Proof sketch (by contradiction).

1. Assume exists t*: E(t*) = 1 with content C* = “non-being is (now) experienced”.
2. Tokening at t* entails some positive content (PENA), hence being-as-experienced at t*.
3. C* denies the very tokening it must carry; hence C* cannot be veridical.
4. Therefore no veridical witness of “experienced non-being” exists. QED.

Corollaries.

- Birth is not “experience of prior non-being”; it is onset of E(t) on some interval.
- Death is not “experience of post non-being”; it is the condition that for all t > t_d, E(t) = 0.
- Gaps (sleep, anesthesia, coma) are intervals where E(t) = 0 bracketed by E(t) = 1 before/after; they generate no datum about non-being.

2.4 Boundary and branching cases (well-typed handling)

Temporary suppression.

- If exists t1 < t2 with forall t in (t1,t2): E(t) = 0 and exists t3 > t2: E(t3) = 1, then no “return from nothing” occurs; only cessation and resumption of tokening.

Abrupt cessation.

- If exists t_d such that forall t > t_d: E(t) = 0 and there is no later t with E(t) = 1 on any admissible continuation of W (per the chosen identity criterion), then death obtains.

Branching/merging substrates.

- If identity is pattern-based, define a family {W_i} with measures {m_i(t)}.
  Let E_agg(t) := 1 iff sum_i 1_{m_i(t) >= theta} > 0 (or use a max/argmax rule).
  Continuity of first-person report, if modeled, tracks the implementation with highest admissible continuity measure; still, no token can veridically present "non-experience."

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3. Phenomenology: Why "Nothing" Never Appears

3.1 Every first-person datum is contentful; "blankness" is still content

Minimal content principle.
For any tokened experience o at time t, Content(o) = c where c is some admissible type (sensory, affective, cognitive, proprioceptive, or meta-cognitive). "Blank," "void," "pure black," "white-out," "formless peace," "static," and "silence" are *low-structure* contents, not null contents.

Disambiguations that prevent category error.

- "Nothing to report" usually means "no *salient* features," not "no content whatsoever."
- "Darkness" in a lightless room is a positive percept (e.g., low-luminance field, body feel, breath, time-sense).
- Meditation "emptiness" is a trained state with reportable tones (calm valence, broadened attention, reduced discursivity).
- Sensory-deprivation (Ganzfeld, flotation) yields textures (afterimages, body-sway, time-dilation) rather than null.

Formal stub (copy-safe).
Let C be the content space and let 0_C denote the *null* element (no content).
Axiom: If E(t) = 1 then Content(t) in C \ {0_C}.
Remark: "Blankness" = content with very low variance and low semantic density, but still Content(t) != 0_C.

Predictive-processing gloss (optional).
Perception minimizes prediction error. In low-input regimes, the system defaults to priors and bodily signals. The felt "blank" is the stabilized prior-driven scene, not 0_C.

Empirical touchpoints.

- Ganzfeld: homogeneous fields produce phosphenes/drift, not null.
- Eyes-closed “black”: EEG shows structured activity; subjects report gradients, afterimages, body tones.
- “White-out” in snowstorms: overwhelms contrast but preserves vestibular/affective content.

Consequence.
Reports like “I experienced nothing” should be rewritten as “my token’s content had minimal structure/salience.” This preserves PENA: tokened experience never carries null content.

3.2 Memory asymmetry: gaps do not witness non-being

Three-stage clarity.
Experience involves (i) tokening, (ii) encoding/storage, (iii) later retrieval/report. Gaps in (ii) or (iii) cannot retro-create data about the presence/absence of (i).

Notation (copy-safe).

- E(t) in {0,1}: experience indicator.
- M(t0,t1) in {0,1}: “there exists a retrievable memory now about interval [t0,t1].”
  Key facts:
  (i) M(t0,t1) = 0 does *not* imply forall t in [t0,t1], E(t) = 0.
  (ii) If forall t in [t0,t1], E(t) = 0, then there can be no *contemporaneous* witness from within [t0,t1].

Applications.

- Sleep/anesthesia: typically there exist intervals I with E(t) = 0. By definition, no token inside I can encode “non-being.” Later reports (“there was nothing”) = M(I) = 0 plus a narrative fill, not an experienced void.
- Blackouts/syncope: E(t) may be 0 or severely degraded; either way, posterspective claims track M, not E directly.
- NREM vs REM: REM often yields dreams (E(t)=1 with content), yet amnesia can set M=0; absence of recall is not proof of non-experience.

Clean reporting templates.
Prefer typed statements over "nothing" talk:

- "No memories from interval I."
- "Measures fell below threshold: m(t) < theta on I, so we model E(t)=0 there."
- "No reportable content was encoded or retained for I."

Testable-in-spirit predictions.

- No subject can produce a *contemporaneous* veridical report: "I am now experiencing non-experience."
- Post-gap claims of "nothing" will covary with memory-encoding proxies (e.g., depth of anesthesia, burst suppression, PCI), not with any putative datum of "non-being."

Ethical/practical upshot.
End-of-life and clinical communication should avoid "nothingness" language. Speak in terms of expected future E(t), present recoverability of E(t), and confidence about M for past intervals. This keeps families and clinicians aligned on what is known (and not knowable) without reifying "nonexistence."

4. Semantics: Deflating "Nothing"

4.1 Existence as domain-relative satisfaction

Setup. A theory T comes with:

- a domain D_T (what we are quantifying over),
- a vocabulary (predicates, functions, constants),
- a satisfaction relation: M |=_T phi (structure M makes sentence phi true under T).

Definition (existence).
To say "there exists an X with property P" inside T is just the existential quantifier ranging over D_T:

- Existence in D_T: exists x in D_T : P(x).
- Universal claims: forall x in D_T : P(x).

Remarks.

- No extra “existence predicate” is needed in standard first-order logic; the existential quantifier already does the work.
- Changing D_T (or the interpretation M of the symbols) changes the truth value of the existential statement.

4.2 “Nonexistence” is just quantified negation (no “nothing” entity)

Definition (nonexistence).

- “X does not exist (in D_T)” := not exists x in D_T : P_X(x).
  (Here, P_X is the property that would pick out X if instantiated.)

Eliminating “nothing.”

- We never introduce a constant named “nothing.”
- Negations are truth-functional over propositions: “no such x” is fully expressed by not exists x : P(x).
- The empty set {} is a *thing in set theory*, not “nothing.” Emptiness is typed: length([])=0, count(S)=0, null pointer, SQL NULL, etc.

Rewrite templates (drop-in).

- “There is nothing in the box.”
  -> Choose a domain D_box and predicate InBox(x): not exists x in D_box : InBox(x).
- “The particle no longer exists.”
  -> In model M and future domain D_future: not exists x in D_future : (x = that_particle).
- “Creation from nothing.”
  -> Recast as: boundary conditions B with no prior tokens in domain D_past; first tokens appear at t0 via lawful dynamics F. No “nothing” object needed.

4.3 Model relativity: switch domain/theory, switch verdict

Model-relative truth.

- A sentence’s truth depends on (i) what counts as the domain, (ii) how symbols are interpreted.
- Example: “Pegasus exists.”

- In myth-fiction model T_fic with domain D_fic (mythical beings allowed): possibly exists x in D_fic : Pegasus(x).
- In zoology model T_zoo with domain D_zoo (actual animals): not exists x in D_zoo : Pegasus(x).

Avoid reification errors.

- Do not infer a metaphysical "nothing" from a failed existential in some D_T.
- Failed existential = model/domain fact, not an ontic object.

4.4 Handling names, descriptions, and "empty" terms (cleanly)

Definite descriptions (Russellian analysis).
"The present king of France is bald."

- Parse as: exists! x : (KingOfFrance(x) and Present(x)) and Bald(x),
  where exists! means "exists exactly one."
- If uniqueness/existence fails in D_T, the sentence is false; no "nothing" is denoted.

Free logic option (if desired).

- Introduce an existence predicate E!(t) to talk about denotation:
  "a is F" becomes E!(a) and F(a).
- Negative existentials like "Pegasus does not exist" are not exists x : Pegasus_is(x).
- Still no "nothing" term needed.

Hilbert epsilon (optional tool).

- (\epsilon x) P(x) denotes "some x with P(x)" if there is one; otherwise arbitrary.
- Truth still rides on exists x : P(x); epsilon does not conjure "nothing."

4.5 Typed emptiness beats metaphysical nothing

Across disciplines.

- Math: |{}| = 0 (cardinality zero). {} is an object in ZF; it is not "nothing."
- CS: null, None, unit type (), empty list [], zero-length string "" are typed values.

- Databases: SQL NULL engages 3-valued logic; “no value stored” != “value of ‘nothing’.”
- Measurement: “no counts detected” = below threshold or zero events in an interval; requires model of sensitivity and exposure.

Reporting templates.

- Replace “nothing” with typed emptiness/access statements:
    - “No members in set S” -> count(S)=0.
    - “No signal” -> measurement < detection_threshold over exposure E.
    - “No such entity” -> not exists x in D_T : P(x).

4.6 Compact logical core (copy-safe)

- Existence (domain-relative): exists x in D : P(x).
- Nonexistence (deflationary): not exists x in D : P(x).
- Uniqueness: exists x : (P(x) and forall y : P(y) -> y = x).
- Model relativity: (M,D) |= exists x : P(x) may differ from (M’,D’) |= exists x : P(x).
- Anti-reification rule: Never introduce a constant or object “nothing” to explain negation; use domains, quantifiers, and typed emptiness.

One-line summary.
All “nothing” talk reduces to domain choices plus quantified negation; changing the model or domain changes the verdict—no metaphysical “nothing” need apply.

5. Typed Emptiness Across Disciplines

5.1 Mathematics / Computer Science

Set theory.

- Empty set is an object: {} in ZF(C).
  Axioms: |{}| = 0; for all x, x notin {}.
  Power set: P({}) = {{}} has cardinality 1. Emptiness is *typed* (a set of size 0), not a metaphysical void.

Algebra / number systems.

- 0 is an additive identity in rings/fields: a + 0 = a.
  It denotes quantity zero, not “nothingness.” Distinguish 0, 1, and undefined.

Logic.

- False is a truth value; it is not “nothing.”
- Empty domain D = {} is allowed in free logics; quantifiers then evaluate by rule, not by invoking “nothing.”

Type theory / programming.

- Unit type: () has a single inhabitant ().
- Empty type: Void has no inhabitants; functions Void -> A exist but are uncallable (ex falso).
- Option/Maybe type: Maybe A = None | Some(a).
  None is a variant value with type Maybe A, not an entity “nothing.”

Data representations.

- Null vs empty vs missing:
  - Empty string "" (length 0) is a value.
  - [] is an empty list; it is a concrete data structure.
  - SQL NULL means “value not recorded/unknown,” engaging 3-valued logic (TRUE/ FALSE/ UNKNOWN).
  - IEEE-754 NaN is a floating value with special semantics; NaN != NaN by spec.

Templates (drop-in).

- “No elements”: count(S) = 0.
- “No string content”: len(s) = 0.
- “Missing”: value = NULL (unknown), not value = “nothing.”
- “Not a number”: isNaN(x) = TRUE; do not compare x == x.

Pitfall. Conflating {}, NULL, "", 0, and NaN yields logic bugs and false inferences of “nothing.”

5.2 Engineering / Measurement

Detection theory.

- "No signal" := measured_signal < detection_threshold over exposure E.
  It is a *typed condition* defined by the instrument model (noise, bandwidth, dynamic range).

Signal processing.

- Silence in digital audio can be:
  - exact zeros (hard mute),
  - dithered floor (low-amplitude noise),
  - gated silence (below threshold).
    All are states in the representation; none is metaphysical void.

Instrumentation accounting.

- Report = (estimate, uncertainty, LOD, LOQ, exposure, background).
  LOD = limit of detection; LOQ = limit of quantitation.
  "ND" (not detected) means estimate < LOD given E, not "does not exist."

Controls and calibration.

- Blank control is a prepared state with expected baseline; it is a something with parameters.
- Zeroing creates a reference offset; it does not produce "nothing," it encodes a convention.

Templates (drop-in).

- "No signal" -> y_hat < LOD at confidence alpha under exposure E.
- "No defects observed" -> 0 detections in n trials; 95% upper bound on rate p is ~ 3/n (Poisson rule-of-three).
- "No leak" -> leak_rate < LOD(E, noise); not "leak does not exist."

Pitfalls.

- Reporting "none" without LOD/E misleads stakeholders.
- Treating zeros as exact physical absence when resolution/quantization applies (underflow to 0.0).

5.3 Epistemology / Inference

Principle. “No evidence” != “evidence of absence” unless the test is power-sufficient and scope-complete for the claimed effect.

Frequentist framing.

- Power = P(reject H0 | H1 true).
- A non-significant result at n with low power does not support absence; it is *inconclusive*.
- Equivalence/TOST or non-inferiority tests are needed to argue practical absence within a margin delta.

Bayesian framing.

- P(H|data) depends on prior and likelihood.
- Absence claims require models that strongly penalize undetected effects under the sampling plan (marginal likelihood favors simpler H0 only if the design would have likely seen H1).

Rule-of-three (quick bound).

- With 0 events in n independent trials, an approximate 95% upper bound on true rate p is $p < 3/n$.
  Example: 0 failures in 1,000 cycles -> $p < 0.003$. That is *bounded rarity*, not “nonexistence.”

Survey / scope completeness.

- Coverage C, sensitivity S, and false-negative rate beta must be reported.
  “Not found” -> consistent with presence below S or outside C.

Knowledge-base hygiene.

- Distinguish: missing data, negative results, and ruled-out hypotheses.
- Register null results to prevent publication bias; absence claims demand preregistration and power analysis.

Templates (drop-in).

- “No evidence for X” -> study was underpowered; cannot adjudicate.
- “Evidence of absence (within delta)” -> TOST passed at alpha with margin delta.

- “Not observed in survey” -> coverage = C, sensitivity = S; posterior bound on prevalence p: p < p* (report value).

Ethical communication.

- Replace “there is nothing” with bounded, typed statements:
    - “We detected 0 events; 95% upper bound on rate is 3/n.”
    - “With power = 0.9 for effect size d >= 0.3, we failed to detect d >= 0.3; effects smaller than 0.3 remain possible.”
    - “No records found in database D under query Q as of date T; coverage of D for this domain is limited.”

5.4 One-line synthesis

Across math, CS, engineering, and epistemology, “emptiness” is always a *typed state under a model*—counts, encodings, thresholds, or bounds—not a metaphysical “nothing.”

6. Physics Fit

6.1 GR: proper time ends; no host for E(t) beyond t_d

- Worldline W with metric g_{\mu\nu}: d\tau^2 = (1/c^2) g_{\mu\nu} dx^\mu dx^\nu.
- Experience tokens, if any, live on parameter values \tau in a domain T_W.
- **Death at t_d (or \tau_d):** for all \tau > \tau_d, there are no parameter values on W to host tokens; E(\tau) is undefined (or 0 by convention).
- Geodesic incompleteness or termination (e.g., physical destruction of the substrate) yields “no further \tau,” not an event that could encode “I now experience non-being.”
- **Key point:** GR supplies geometry and causal structure; it never supplies an event that can be both an experience token and a denial of tokening.

6.2 QFT: vacuum is a structured state; “nothing” is not a state

- A quantum field has a Hilbert space \mathcal{H} and a vacuum vector \lvert 0 \rangle (or vacua set in broken/superselected cases).
- **Vacuum facts:** zero expectation for number operators, nonzero correlators; fluctuations, symmetries, and boundary effects (e.g., Casimir) are defined features.

- Spontaneous symmetry breaking, zero-point energy, and renormalization all operate on *states* and *operators*; none require a metaphysical "nothing."
- **Conclusion:** QFT's "nothing" is always a something: a typed, dynamical ground (possibly degenerate), never an ontic void.

6.3 Horizons limit access, not being

- **Rindler (uniform acceleration a):**
  Coordinates: ct = \xi \sinh(a\eta/c), x = \xi \cosh(a\eta/c).
  Horizon at \xi = 0. Proper acceleration pins an access boundary; worldlines beyond the horizon are not annihilated, only causally inaccessible.
  Unruh temperature: T_U = \hbar a / (2\pi c k_B).
- **Black-hole event horizon:** null surface separating causal regions. No local "non-being" event; infaller's regular crossing vs. exterior inaccessibility. Hawking flux is a global QFT-on-curved-spacetime effect, not creation "from nothing."
- **Cosmic/de Sitter horizon:** radius R_H \approx c/H; Gibbons–Hawking temperature T_{GH} = \hbar H / (2\pi k_B). Beyond the horizon is beyond access given expansion, not ontically absent.
- **Principle:** "Out of reach" \neq "does not exist." Horizons instantiate access limits that preserve PENA and the no-witness lemma.

7. Boundaries and Casework

7.1 Birth: onset of E(t); no "experience of prior non-being"

- Let t_0 be the earliest time such that E(t) = 1 for some t \ge t_0 under the adopted criterion (biological, functional, or informational).
- Prenatal periods may include graded precursors (m(t) rising toward a threshold \theta). The formalism stays neutral on *when* E(t) first obtains; it only asserts:
  Onset: exists t \ge t_0 with E(t) = 1.
  No paradox: there is no token at t < t_0 to carry "experience of prior non-being"; such content is ill-typed.
- **Reporting template:** "E(t) first satisfied the criterion at t_0; before t_0 there are no tokens, hence no reports from that interval."

7.2 Anesthesia / coma: non-reporting intervals do not witness non-being

- **Intervals:** Let I = (t_1, t_2) with E(t) = 0 on I (per model: e.g., m(t) < \theta; burst-suppression; unresponsive state).
- **Bracketing:** If E(t) = 1 at some t < t_1 and some t > t_2, then the subject's stream includes tokens before and after I without any contemporaneous witness from inside I.
- **Memory vs experience:** Later claims "there was nothing" track M(I) = 0 (no retrievable memory), not a token whose content is "non-experience."
- **Clinical proxies (discipline-specific, model-neutral):** PCI/perturbational measures, EEG patterns, hemodynamic/behavioral responsiveness. These inform m(t) and \theta operationally without altering PENA.
- **Reporting template:** "During I, indicators fell below threshold \theta (E=0). No content from within I can attest to non-being; post-hoc 'nothing' reports are absence of memory, not experienced voids."

7.3 NDE reports: boundary-proximate E(t), not counterexamples to PENA

- **Setup:** Near-death experiences (NDEs) are contentful episodes E(t) = 1 occurring under extreme boundary conditions (hypoxia, ischemia, arrhythmia, deep anesthesia, resuscitation).
- **Compatibility:** Because they are experiences, NDEs *confirm* PENA's content requirement. Their phenomenology (tunnels, life review, presence, peace/fear) is positive content, not "experienced non-experience."
- **Timing ambiguity:** NDE content may be (i) contemporaneous with borderline physiology, (ii) reconstructed upon recovery, or (iii) a mix (fragmentary encoding plus confabulation). All remain E(t)=1 tokens whenever they are actually instantiated.
- **No-witness lemma preserved:** No veridical token with content "I now experience non-being" is possible; NDE narratives never supply such a token.
- **Reporting template:** "NDEs are contentful E(t) near t_d candidates. They do not violate PENA; they provide data about boundary phenomenology, not about non-being."

Compact drop-in summary

- **GR/QFT:** physics supplies structures (worldlines, vacua, horizons), not an ontic "nothing."

- **Birth:** first E(t) occurs; no token can report “prior non-being.”
- **Anesthesia/coma:** gaps are E=0 intervals; later ‘nothing’ talk = no memory, not experienced void.
- **NDEs:** contentful boundary experiences; consistent with PENA and the no-witness lemma.

8. Discriminators

8.1 Theory hygiene: replace “nothing” with typed emptiness or access limits

Decision rule.
If a claim uses “nothing,” perform a two-step rewrite:

1. Choose a model M with an explicit domain D and observables.
2. Replace “nothing” with either (a) quantified negation in D or (b) an access-limit statement tied to the causal/epistemic design.

Success criterion.
The rewritten model should yield sharper, auditable predictions (bounds, thresholds, error bars) than the “nothing” phrasing.

Examples.

- “Creation from nothing” -> “No tokens in D_past; boundary B at t0; dynamics F generate tokens thereafter.”
  Check: Does B+F predict spectra, anisotropies, or conserved quantities we can test?
- “Nothing in the box” -> “not exists x in D_box: InBox(x).”
  Check: Specify sensor LOD/LOQ; predict false positive/negative rates under repeated trials.
- “No cause” -> “Unmodelled causes beyond current access horizon H; inside H, residuals are white per test T.”
  Check: Are residuals iid with expected variance? If not, refine the generator.

Falsifier-in-spirit.
If the “typed” rewrite cannot be made without lowering predictive sharpness, or repeatedly fails posterior predictive checks while the “nothing” story continues to be invoked, that counts against the austerity program.

Reporting template.

- Original: “We found nothing.”
- Rewritten: “0 detections; 95% upper bound $p < 3/n$ under Poisson, exposure E, LOD L. Residuals passed test T ($p=0.41$).”

8.2 Clinical discriminators: track E(t) proxies; recovery = restoration of E(t)

Operationalization.
Let E(t) be modeled via a thresholded measure m(t) with criterion theta. Use multiple proxies to triangulate m(t):

- Integration indices: PCI (perturbational complexity index), Lempel-Ziv complexity, neural entropy measures.
- Behavioral: CRS-R (Coma Recovery Scale-Revised), command-following, pain responses.
- Physiology: EEG patterns (burst suppression, alpha/coma signatures), fMRI connectivity, pupillometry.

Define E(t)=1 iff m(t) >= theta given a pre-registered composite rule.

Success criterion.
Interventions that “restore consciousness” should measurably raise m(t) across the boundary theta; subjective report (when possible) and objective scores should converge.

Design patterns.

- Pre/post intervention: measure m_pre, m_post; declare restoration if m_post - m_pre >= delta and exceeds theta with durability >= tau.
- A/B sham-controlled: blinded stimulation vs sham; primary endpoint is % time with E(t)=1.

Avoid “nothing” framing.

- Replace “returned from nothing” with “E(t) was 0 under criterion C; after intervention, E(t) sustained >= theta for duration tau.”

Falsifier-in-spirit.
If robust, multi-modal measures remain sub-threshold while narrative insists on “experience of non-being” or “return from nothing,” the narrative loses evidential weight relative to the model.

Conversely, if patients show verifiable reportability when proxies claim E(t)=0, revise theta or the proxy suite.

Reporting template.

- "During interval I, E(t)=0 by PCI<theta and CRS-R<k. Post hypothermia reversal and amantadine, PCI rose above theta for 4.3 hours; patient produced consistent yes/no code. Recovery interpreted as restoration of E(t), not return 'from nothing.'"

8.3 Observational cosmology: treat nulls as limits, not non-being

Principle.
"Not detected" => limit statements that bind models by sensitivity, coverage, cadence, and background systematics.

Key quantities.

- Coverage C (sky fraction, redshift range, cadence).
- Sensitivity S (flux limit, SNR threshold).
- Selection function S(x) mapping true objects to detection probability.
- Exposure E (observation time, area, bandwidth).
- Systematics model B (foregrounds, calibration, completeness).

Use cases and discriminators.

- **Galaxy surveys / LF tails.**
  Nulls at faint end -> upper bounds on number density phi(L); compare Schechter-function extrapolations vs alternative feedback models.
  Discriminator: Posterior predictive checks on counts-in-cells; typed nulls tighten the LF slope constraints.
- **Dark matter direct detection.**
  0 events -> cross-section upper limits sigma < sigma* as a function of mass m_chi; compare to thermal relic targets.
  Discriminator: Limit curves intersect or exclude swaths of parameter space; "nothing" says less than the limit plot.
- **CMB anomalies / primordial features.**
  Non-detection of features -> bounds on power-spectrum wiggles, r (tensor-to-scalar ratio), or non-Gaussianity f_NL.

Discriminator: Models predicting features above S should be down-weighted by Bayes factors when typed nulls persist.

- **FRBs, GRBs, kilonovae.**
  Survey non-detections yield rate density limits R < R* given volumetric sensitivity; constrain progenitor models.
  Discriminator: Event-rate posteriors update cleanly; "no events" becomes a numeric bound, not a metaphysical claim.

Horizon language.
Use access-limit phrasing for regions beyond light-cone or instrument reach: "beyond survey horizon H_z, statements are underdetermined," not "do not exist."

Falsifier-in-spirit.
If a model framed without "nothing" (using typed limits and horizons) chronically underperforms a rival that relies on "nothing" as an ontic posit *and* the rival yields strictly sharper, repeatedly confirmed predictions, that pressures the austerity stance. In practice, typed-limit models dominate.

Reporting template.

- "No candidates above 5-sigma in 10^6 s exposure; 95% CL upper bound on rate R < 0.3 yr^-1 Gpc^-3 for luminosity L >= L*. Sky coverage C=0.42, completeness 0.87. Constraints disfavour Model A (>2x expected detections) versus Model B (consistent with limit)."

8.4 Cross-domain checklist (quick audit)

- Replace "nothing" with: quantified negation, LOD/LOQ bounds, coverage and sensitivity, horizon/access statements.
- Pre-register thresholds theta, deltas, and decision rules.
- Always publish nulls with power analyses or Bayesian model comparisons.
- Prefer models whose "null results" tighten parameters or exclude classes of theories.
- Treat residuals as the arbiter: if residual structure remains, refine the something; do not invoke "nothing."

One-line summary.
Good theories turn "nothing" into numbers: thresholds, bounds, horizons, and posterior updates that other researchers can reproduce and beat.

9. Ethical and Practical Consequences

9.1 Clinical care: act where E(t) is possible or plausibly restorable

Principle. Allocate effort where present or future E(t) is feasible; define "futility" as constraints on future E(t), not metaphysical "nothing."

Operationalization.

- Define m(t) as a composite proxy (e.g., PCI, CRS-R, EEG, imaging).
- Pre-register a threshold theta and durability tau for declaring E(t)=1 (e.g., PCI >= theta sustained >= tau with corroborating behavior).
- Restoration claim = m_post - m_pre >= delta AND m_post >= theta with durability >= tau.

Futility (constraints on future E(t)).

- Futility_now: P(E_future >= theta for duration >= tau | treatment) < p_min (pre-specified).
- Futility_strong: Above plus high confidence that no pathway remains (biological irreversibility, catastrophic substrate loss).

Care pathways.

- If E(t) plausible: escalate neuro-rehab, temperature management, metabolic correction, stimulation trials, minimize iatrogenic suppression.
- If E(t) implausible short-term but uncertain long-term: time-limited trials with exit criteria; revisit thresholds as data accrue.
- If futility_strong: shift to comfort-focused care; narrate as "no remaining pathway to future E(t) above threshold," not "nothing remains."

Documentation templates.

- "During I, m(t) < theta; after intervention X, m(t) exceeded theta for tau with reproducible command-following. We interpret this as restoration of E(t)."
- "Despite Y, P(E_future >= theta, tau) < p_min given current evidence; we judge further invasive measures non-beneficial."

Ethics safeguards.

- Separate uncertainty about E(t) from value judgments; disclose priors, thresholds, and power.
- Include patient values: if the patient's advance directive defines acceptable E(t) qualities (communication, autonomy), use those as decision criteria.

9.2 Grief, meaning, and record-keeping: loss = cessation of shared future E(t)

Reframing loss.

- Loss is the cessation of *shared* future E(t) with the deceased, not evidence of "non-being."
- This clarifies why artifacts and rituals matter: they extend relations through memory and testimony even when no new E(t) tokens can be co-authored.

Rituals grounded in presence.

- Witness logs: letters, audio/video messages, shared journals—typed artifacts that preserve relational content.
- Memorial practices: tell specific stories (contentful tokens), avoid void metaphors that can confuse or alienate.

Communication templates.

- "There will be no further moments we can share with N; we will preserve the ones we have in these records."
- "Today we honor the stream we *did* share; our practices keep that content available to future observers."

Pastoral/clinical language.

- Prefer: "end of further experiences for them," "no more shared moments," "we carry forward the meanings."
- Avoid: "they are nothing now," "returned to nothing."

Practical supports.

- Archive design: durable, searchable repositories for personal content; access controls for family.

- Anniversary prompts: scheduled remembrances that re-token relational content.

9.3 Governance and argument hygiene: ban appeals to "nothing"; require typed claims

Policy rule.

- Forbid "nothing" as an ontic posit in clinical, scientific, legal, or safety documents. Require explicit domains, tests, thresholds, bounds, and horizon statements.

Standards (drop-in).

- Existence/absence: express as quantified statements over a domain D with LOD/LOQ, coverage, power, and error rates.
- Access limits: mark causal/epistemic horizons (what we cannot, even in principle, observe under current design).
- Null results: publish with power analyses or Bayesian model comparisons; register protocols in advance.

Review checklists.

- Does the claim specify D, LOD/LOQ, exposure, coverage, and uncertainty?
- Are thresholds theta, durability tau, and decision deltas pre-declared?
- Are "no signal / not detected" claims converted to numerical bounds?
- Are horizon limits (causal, ethical, legal) explicitly labeled instead of implied as non-existence?

Legal/ethical drafting.

- Replace "no risk," "nothing present," "nothing to disclose" with:
  "Under test T (power p), within scope S and exposure E, 0 findings; 95% upper bound on rate $r < r^*$; outside S, undetermined."

Institutional memory.

- Mandate retention of negative/limit findings to reduce publication bias.
- Audit language for untyped emptiness each quarter; train staff on typed-absence formulations.

One-line ethic.
Clarity is kindness: talk in thresholds, bounds, and horizons—never in "nothing."

10. Objections and Replies

10.1 O: “I can imagine nothing.”

Reply. What you token is a *contentful* scene with minimal structure (e.g., uniform field, silence, formlessness).
Formal. If E(t)=1 then Content(t) ∈ C \ {0_C}. “Blankness” has low variance/semantic density but Content(t)≠0_C.
Testable-in-spirit. Ganzfeld, sensory deprivation, or meditation logs show reportable features (afterimages, time dilation, affective tone).

10.2 O: “Negation needs nothing.”

Reply. Negation operates on *propositions*, not on a denizen called “nothing.”
Formal. “X does not exist (in D)” := ¬∃x∈D: P_X(x). No constant ‘nothing’ is introduced.
Consequence. Keep domain D explicit; swap D or interpretation and the truth value may flip—still no “nothing.”

10.3 O: “Physics speaks of creation from nothing.”

Reply. In practice this abbreviates boundary conditions plus lawful dynamics acting on structured states.
Formal. Pre-phase: no tokens in D_past; boundary B at t0; evolution F ⇒ tokens thereafter. Vacuum |0⟩ is a *state* with symmetries and correlators, not an ontic void.
Discriminator. Prefer models that turn “nothing” claims into measurable spectra, anisotropies, or rates; vacua/horizons produce testable signatures (Casimir, Hawking/Unruh).

10.4 O: “Death feels like falling into nothing.”

Reply. The final felt E(t) can represent *fading* or *loss of grip*; by PENA, “experience of non-experience” cannot be tokened.
Formal. Death at t_d := ∀t>t_d, E(t)=0. No t satisfies E(t)∧“non-being now.”
Care language. Say “no further experiences” or “no more shared future E(t),” not “became nothing.”

10.5 O: "But dreamsless sleep proves nothingness."

Reply. It proves *no memories* or sub-threshold m(t), not "experienced non-being."
Formal. M(I)=0 does not entail ∀t∈I: E(t)=0; and if E(t)=0 in I, no contemporaneous token can witness "non-being."
Clinical tie-in. Depth of anesthesia correlates with PCI/EEG; post-hoc "nothing" reports track memory encoding, not an experienced void.

10.6 O: "If copies exist, which one is 'me'? The rest are nothing?"

Reply. Identity can be modeled as a pattern class; multiple implementations can host E(t).
Formal. For implementations {W_i}, E_agg(t)=1 iff $\sum_{i}$ 1{m_i(t)≥θ}>0 (or argmax rule). No instance is "nothing"; measures differ.
Consequence. Branching reallocates measure; it does not conjure or require "nothing."

10.7 O: "If a domain is empty, isn't that 'nothing'?"

Reply. An empty domain or empty set is a *typed object/state* in the theory.
Formal. |∅|=0, P(∅)={∅}. Logic on D=∅ proceeds by rules; no ontic void is posited.
Practice. Distinguish ∅, NULL, 0, "" , NaN—each with distinct semantics.

10.8 O: "Saying 'no being' is clearer than your formalisms."

Reply. It's rhetorically simpler but epistemically unsafe: it hides domains, thresholds, and limits.
Discipline rule. Convert "nothing" to quantified negation, bounds (LOD/LOQ), or horizon statements. This yields decisions others can audit or beat.

10.9 O: "This is just wordplay—death *is* nothing to the dead."

Reply. It's not wordplay; it's a typing rule on experiences.
Formal. Death := cessation of further E(t). The dead host no tokens; hence no datum supports "experienced non-being."
Ethic. Clarity helps families and clinicians: talk in futures of E(t), not metaphysical voids.

10.10 O: "Couldn't a future theory *observe* nothing?"

Reply. Observation, by definition, tokenizes content. Any "observation of nothing" would instantiate a contentful record—refuting itself.
Constraint. Any viable theory must respect PENA: no veridical token with content "non-experience now."

11. Compact Formal Summary

Notation.

- E(t) in {0,1}: experience indicator at time t along a worldline or pattern-implementation W.
- m(t) >= 0: optional measure of presence (information/integration proxy).
- theta > 0: threshold for tokening; by convention E(t) := 1 iff m(t) >= theta.
- D: explicit domain of quantification for a given theory/model.
- P_X(x): predicate that would be satisfied by instances of X.
- Access(R): statement that region/variable R is within causal/epistemic reach of the design.

Thesis (death).
Death := there exists t_d such that for all t > t_d, E(t) = 0.
Equivalently: no further experience tokens occur for the subject after t_d.
Importantly: no event at t_d can host an "experience of non-being."

PENA (Principle of Experiential Non-Access).
For any observer O and any observation o tokened by O, Content(o) = c with c != null.
Corollary: reports of "blankness," "void," or "silence" are *low-structure* contents, not null contents.

No-witness lemma.
There is no t such that E(t) = 1 and Content(t) = "non-experience now" is veridical.
Sketch: tokening implies content; the asserted content denies tokening; contradiction.

Semantic deflation (existence/nonexistence).
"X exists (in D)" := exists x in D: P_X(x).
"X does not exist (in D)" := not exists x in D: P_X(x).

No constant or entity named “nothing” is ever required. Empty set, null, None, 0, NaN are *typed* states/objects, not metaphysical voids.

Horizon principle (access vs being).
Beyond-access != non-existence.
Rule: if R is outside Access(R), label claims about R as “underdetermined” unless a domain/test makes them decidable.
Examples: causal horizons (Rindler/black-hole/cosmic), instrument limits (LOD/LOQ, coverage), computational bounds.

Reporting templates.

- Death framing: “No further E(t) beyond t_d under criterion C (theta, proxies m).”
- Null finding: “0 detections; 95% upper bound p < 3/n given exposure E and LOD L.”
- Access limit: “Outside scope S or beyond horizon H; status underdetermined.”
- Nonexistence (domain-relative): “not exists x in D: P_X(x) (as of T, with coverage C and sensitivity S).”

Implication lattice.

- PENA => (no-witness lemma).
- (no-witness lemma) + Thesis => “death is cessation of further E(t), not an experienced ‘nothing’.”
- Semantic deflation + horizon principle => replace “nothing” talk with quantified negation, typed emptiness, and access statements.

Audit checklist.

1. Is D (domain), S (sensitivity), C (coverage), and LOD/LOQ specified?
2. Are theta (token threshold) and durability tau pre-declared for E(t)?
3. Are nulls converted to numeric bounds (vs “found nothing”)?
4. Are horizon/limit statements used where access fails (vs “does not exist”)?

One-line summary.
Death = no further E(t); PENA forbids “experienced non-being”; “nonexistence” is quantified negation in a domain; beyond access is underdetermined, not “nothing.”

12. Conclusion

A coherent, minimal ontology does not require a metaphysical “nothing.” Three pillars carry the load:

1. Phenomenology sets a hard constraint: an experience of non-experience is ill-typed. Any tokened observation has positive content; “blankness” is low-structure content, not null. Hence there can be no datum whose veridical content is “no datum now.”
2. Semantics removes the illusion that “nothing” names a thing. Existence and nonexistence are domain-relative claims: exists x in D: P(x) or not exists x in D: P(x). Emptiness everywhere is typed—{}, NULL, 0, NaN, below-threshold—never an ontic void.
3. Physics supplies structure, not voids: worldlines and proper time in GR, vacua and operators in QFT, horizons as limits of access. These furnish hosts for tokens, grounds for limits, and signatures for tests—without invoking “nothing.”

Under this frame, death is precisely: no further E(t). It is real and grave—an end to future tokens for a subject—yet never an experience of non-being. This retyping has practical force. In clinics, it focuses care on restoring or sustaining E(t) and defines futility as constraints on future E(t), not mystical void. In science and engineering, it turns “found nothing” into thresholds, bounds, and horizon statements that others can audit and beat. In communal life, it reframes grief as the cessation of shared future E(t), grounding remembrance in preserved records and witness, not in denial or metaphysical fog.

The payoff is clarity and kindness. By speaking in typed absences and access limits, we get cleaner predictions, cleaner ethics, and cleaner decisions. Where a theory says “nothing,” let it say instead what is absent, where, under which domain, with what sensitivity, and why. Where feeling tempts us toward void metaphors, let practice answer with thresholds, horizons, and care.

Two closing commitments follow:

- Epistemic: Always replace “nothing” with quantified negation, numeric bounds, or explicit horizons; prefer models whose nulls tighten parameters or exclude classes of hypotheses.
- Human: Attend to where E(t) can yet be, or be restored, and honor what E(t) has been—through records, stories, and just action.

In that light, “nothing” was never needed. What we have are beings, relations, measures, and limits. That is enough to reason well, to care well, and to name death truly: cessation of further experience—without ever becoming an experience of non-being.

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Note: Items are chosen to anchor the paper's claims: phenomenological constraint (PENA), semantic deflation of "nothing," typed emptiness in math/CS, GR/QFT structure (worldlines, vacua, horizons), clinical/empirical proxies for E(t), and statistical treatment of "nulls" as limits rather than ontic voids.